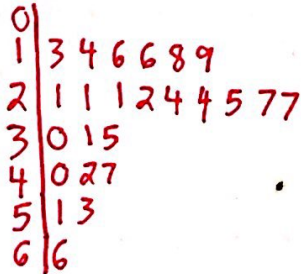


Practice: Data Displays, Measures of Center & Spread

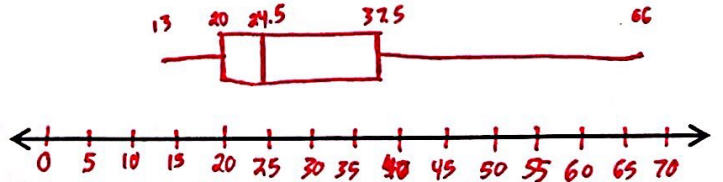
1) Listed below are the ages of 24 people that were exercising at a fitness center:

13, 14, 16, 16, 18, 19, 21, 21, 21, 22, 24, 24, 25, 27, 27, 30, 31, 35, 40, 42, 47, 51, 53, 66

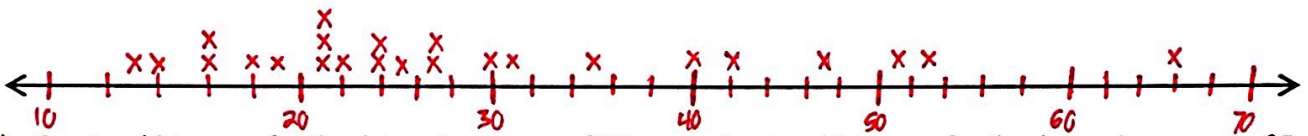
a) Create a stem-and-leaf display for the data.



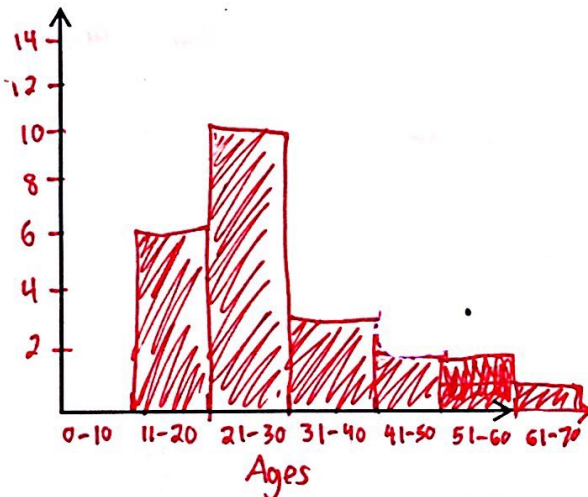
b) Create a box-and-whisker plot for the data.



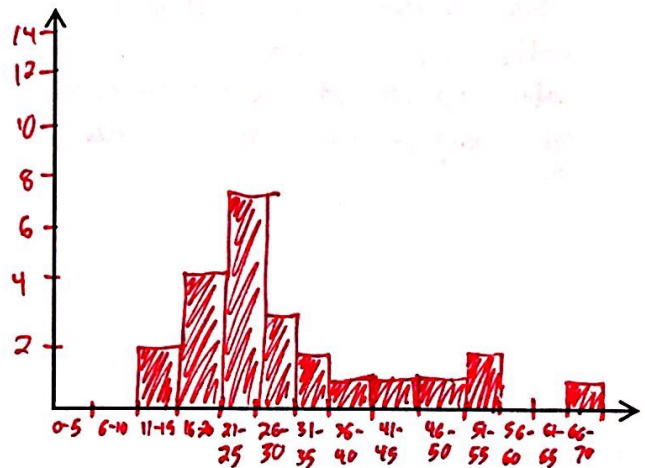
c) Create a dot plot for the data.



d) Create a histogram for the data using groups of 10.



e) Create a histogram for the data using groups of 5.



2) a) Write one advantage and one disadvantage for the stem-and-leaf display.

- A- Can see which groups have more AND can see individual data
- D- Doesn't show distance between data values

b) Write one advantage and one disadvantage for the box-and-whisker plot.

- A- Can easily see where the data is grouped together / spread out
- D- Can't see individual data values

c) Write one advantage and one disadvantage for the dot plot.

- A- Can see individual data values AND distance between them
- D- Difficult to create for large amounts of data

d) Write one advantage and one disadvantage for the histogram.

- A- Shows overall trends very well
- D- Can't see individual data values

e) Compare the two histograms. Which one do you prefer and why?

Answers vary.

3) Listed below are the numbers of letters in the last names of a 22-person classroom. *3, 4, 4, 5, 5, 5, 6, 6, 7, 7, 7, 7, 8, 8, 8, 8, 8, 8, 8, 11*

5, 8, 3, 8, 8, 5, 7, 4, 7, 5, 7, 11, 7, 8, 8, 8, 5, 7, 6, 5, 7, 4

- a) Find the mean. b) Find the median. c) Find the mode. d) Find the range.

$\frac{144}{22} = \boxed{6.54}$

$\boxed{7}$

$\boxed{7} + \boxed{8}$

$11 - 3 = \boxed{8}$

e) Find the interquartile range.

$8 - 5 = \boxed{3}$

f) The mean is lower than the median. Why do you think this is?

~~More values~~ Most of the values above the median are very close to it. The data is skewed left. There are low outliers.

4) Listed are the number of points scored by a point guard in 5 recent basketball games: 11, 9, 8, 46, 11

- a) Find the mean, median, and mode. Which of these are good representations of the "typical" scoring output of this point guard? Why? Which of these are not? Why?

8, 9, 11, 11, 46

Mean = 17
Median = 11
Mode = 11

Mean is not a good representation because you can see his typical score is around 10. The 46 is an outlier. Median + Mode are.

5) 10 Girl Scouts were selling Girl Scout cookies. They kept track of how many boxes each of them had sold, and as of Monday, Debbie had sold the most boxes. On Tuesday, Debbie sold 20 more boxes, while none of the other Girl Scouts sold any more. Which of these measures changed after Debbie sold her 20 extra boxes? Which stayed the same? Explain your reasoning for each: Mean, Median, Mode, Range, Interquartile Range

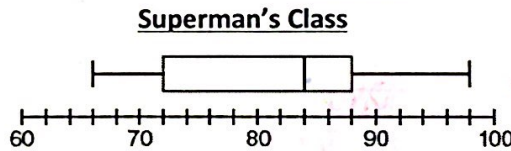
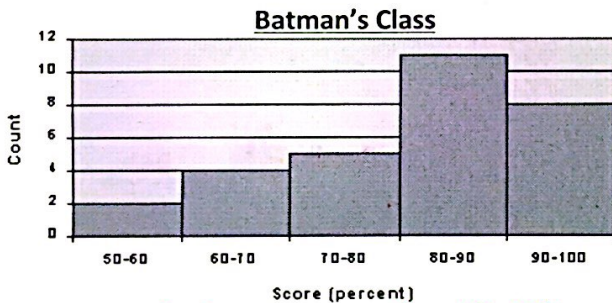
Mean changes - the sum would be higher

Median stays the same - you're only replacing the last one; the middle one doesn't change

Mode stays the same - ~~at least the mode~~

Range changes - It uses the highest value, which changed IQR stays the same - it doesn't use the highest value

6) The box plot and histogram each show the exam scores of different 30-person classes. Which class do you think did better on the exam? Use the information from the data displays to make a convincing argument.



- Avg = about 81.3
- Median = ~~80~~ value of the 80-90 group (84?)
- More 90-100

- Median = 84
- Lots of 84-88
- No 50-60
- Fewer 90-100

Answers can vary. It can be argued both ways

7) Try to come up with your own set of data that fits all of the following requirements:

- There are 7 data values total
- The mean, median, and range are all 10

5, 8, 9, 10, 11, 12, 15

8) Try to come up with your own set of data that fits all of the following requirements:

- There are 6 data values total
- The mean is 20
- The median is 16
- The range is 20

Values must sum to 120!
 $\boxed{14, 15, 16, 16, 25, 34}$